UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,130	02/06/2001	Jonathan Williams Haines	SEA10033/40046.149-US-U1	3191

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EXAMINER
LI, ZHUO H

ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _20 November 2003_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-18 and 20_ is/are rejected.

7)☒ Claim(s) _19_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 1-04)   Office Action Summary   Part of Paper No./Mail Date 6

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2.   Claims 1-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

DeMoney (US PAT. 6,385,673) in view of Gupta et al. (US 2002/0091722).

        Regarding claim 1, DeMoney discloses a method for characterizing performance of a

data handling system (300, figure 3) having a cache (405, figure 4) comprising the step of

sending commands to the data handling system for a set of data blocks that are large relative to a

size (col. 3 lines 7-12) of the cache dedicated for the commands and recording a block service

time i.e., deadline time, for each large data block, (col. 11 line 24 through col. 13 line 61 and col.

15 lines 37-55). DeMoney differs from the claimed invention in not specifically teaching the

steps of comparing the block service time to a first threshold and scoring the data handling

system based on the comparison of block service time to the first threshold. However, Gupta

teaches a validation of system I/O performance characteristics by comparing the different block

sizes, including oversize data block ([0011]), service time to a respective estimated information

management system I/O performance characteristic value, i.e., a first threshold, in order to

monitoring the system I/O performance characteristics associated with the I/O resource, thereby

it recognizes Gupta teaching to score the data handling system based on the comparison of the

block service time to the first threshold to offer better cache performance in effectively

improving system throughput ([0011-0012] and [0161-0174]). Therefore, it would have been

obvious to a person of ordinary skill in the art at the time the invention was made to modify

DeMoney in comparing the block service time to a first threshold and scoring the data handling

system based on the comparison of block service time to the first threshold, as per teaching of

Gupta, in order to offer better cache performance in effectively improving system throughput.

Regarding claim 2, DeMoney discloses the data handling system including a disk drive

(figure 2), as well as Gupta ([0050]).

Regarding claim 3, DeMoney discloses the commands being configured to cause the disk

drive to parse the command, to seek to an appropriate track on a disk of the disk drive, to wait for

an appropriate location on the disk, to track-follow on the appropriate track and pass data

between a buffer of the disk drive and the disk and between the buffer and a host computer

interfaced with the disk drive (col. 14 lines 5-27 and col. 16 line 20 through col. 17 line 21).

Regarding claim 4, DeMoney teaches the data handling system being configured to cause one or more networked computers to parse the command, to transmit a request for re-transmission over the network and to receive retried data transmitted over the network (col. 10 lines 5-33 and figure 3).

Regarding claim 5, DeMoney teaches the data blocks being randomly positioned (col. 17 line 22 through col. 18 line 13), as well as Gupta (col. 8 lines 19-26).

Regarding claim 6, Gupta discloses the scoring step comprising heavily and negatively weighting the block service times exceeding the first threshold, lightly and positively weighting the block service times not exceeding the first threshold and averaging the weighted block service time ([0156]-[0171]).

Regarding claim 7, DeMoney discloses the steps of recording the size of data quality errors produced in response to the commands, recording the frequency of data quality errors produced in response to the commands, i.e., peaks condition in the storage activity, and accounting for the size and frequency of data quality errors (col. 11 lines 5-39).

Regarding claim 8, DeMoney discloses the steps of estimating the minimum and the maximum sustained data rates from the recorded block service time (col. 11 line 40 through col. 13 line 5).

Regarding claim 9, DeMoney discloses the steps of estimating the location of data on a disk of the disk drive from the recorded block service time and corresponding commands and determining a fraction of the drive that allows block service time to not exceed first threshold from the estimated locations and corresponding block service times (col. 14 lines 5-27, col. 11 line 40 through col. 12 line 34 and col. 16 line 10 through col. 17 line 21).

Regarding claims 10-11, Gupta teaches to measure several different block sizes to validate a disk drive performance ([0162]-[0164]) so that it recognizes to compute a second threshold or a third threshold that varies from a size of data block and compare the block service time to either the second or the third threshold in order to score the data handling system.

Regarding claim 12, DeMoney discloses to send command that prioritize throughput over data quality (col. 17 line 32 through col. 18 line 42).

Regarding claim 13, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 14, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 15, the limitations of the claim are rejected as the same reasons set forth in claim 4.

Regarding claim 16, the limitations of the claim are rejected as the same reasons set forth in claim 5.

Regarding claim 17, the limitations of the claim are rejected as the same reasons set forth in claim 7.

Regarding claim 18, the limitations of the claim are rejected as the same reasons set forth in claims 10-11.

Regarding claim 20, DeMoney discloses a system (300, figure 3) for characterizing the performance of a data handling system comprising an interface (col. 10 lines 35-37) and a processing means for communicating command through the interface to the data handling system (col. 4 line 8 through col. 8 line 27 and col. 10 line 26 through col. 11 line 4). Demoney differs

from the claimed invention in not specifically teaching the processing means for scoring the data

handling system based on the response to the commands. However, Gupta teaches a validation of

system I/O performance characteristics by comparing the different block sizes, including

oversize data block ([0011]), service time to a respective estimated information management

system I/O performance characteristic value, i.e., a first threshold, in order to monitoring the

system I/O performance characteristics associated with the I/O resource, thereby it recognizes

Gupta teaching to score the data handling system based on the comparison of the block service

time to the first threshold to offer better cache performance in effectively improving system

throughput ([0011-0012] and [0161-0174]). Therefore, it would have been obvious to a person of

ordinary skill in the art at the time the invention was made to modify DeMoney in having the

processing means for scoring the data handling system based on the response to the commands,

as per teaching of Gupta, in order to offer better cache performance in effectively improving

system throughput.

Allowable Subject Matter

3.   Claim 19 is objected to as being dependent upon a rejected base claim, but would be

allowable if rewritten in independent form including all of the limitations of the base claim and

any intervening claims.

Response to Arguments

4.   Applicant's arguments with respect to claims 1-20 have been considered but are moot in

view of the new ground(s) of rejection.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Assouad (US PAT. 6,282,501) discloses a method for testing a disk drive having a

compare circuitry to compare data block that is written to an address with another data block that

is read from the address (abstract). Barve et al. (US PAT. 6,260,108) discloses a system for

modeling and optimizing I/O throughput of multiple disks (abstract). Tsuboi et al. (US PAT.

6,148,367) discloses a controller for allocating areas of a cache memory in an information

processing system having means for judging whether the amount of data in the cache memory

before being stored in a storage unit is equal to or greater than a first threshold value in order to

set an allocation limit value of data for each storage unit (col. 2 line 39 through col.4 line 31).

Mashimo (US PAT. 5,991,835) discloses a peripheral data storage device in which time interval

used for data transfer from relatively fast buffer memory to relatively slower main memory is

selected in view of average of time intervals during which data blocks were recently received

(abstract). Kojima et al. (US PAT. 5,742,933) discloses a rotary memory storage device with

cache control method (abstract).

6.   Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 308-6606

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Fourth Floor (Receptionist).

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Zhuo H. Li whose telephone number is 703-305-3846. The

examiner can normally be reached on Tuesday to Friday from 9:30 a.m. to 7:00 p.m. The

examiner can also be reached on alternate Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Kim, can be reached on (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

Zhuo H. Li
Art Unit 2186